

HERB.
INSTITUTE OF MYCOLOGY - UNIVERSITY OF RECIFE - PERNAMBUCO (BRAZIL)

PUBLICATION N. 21 - 1956

NEW AND UNUSUAL SPECIES OF *BALANSIOPSIS*

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The family Clavicipitaceae created by EARLE (1901) and accepted later by NANNFELDT (1932), BESSEY (1935 a-1952 b), MILLER (1949), was the object of a complete re-investigation made by DIEHL, in 1950, that placed it among the *Sphaeriales* together with the sub-families Oomycetoideae - Clavicipitoidae and Cordycipitoideae, according with GÄUMAN'S division (1926).

The sub-family Clavicipitoideae, groups essentially fungi growing over grasses or sedges that are systemic parasites, with the exception of *Epichloë bertonii* Speg. growing over a Composita (*Mikania scadens*), in Paraguay.

From the taxonomical point of view, the separation of the genera, in this sub-family Clavicipitoideae, is based on the ascostromata features, to which DIEHL added, with reason, the study of the conidial fructification connected with the ascosporic stage.

Based on this new criterion *Balansiopsis* presents no conidial stage, being so distinguished from *Atkinsonella*, *Epichloë*, *Balansia* and *Claviceps*.

This genus, is represented, in the literature, only by three species: *Balansiopsis guaduae* on *Guadua tagoara* (Nees) Kunth, *Bambusa arundinacea* Wild. and *Chusquea uniflora* Steud., with the ascostromata developing at the nodal portion of the hosts; *B. pilulaeformis* (Berk. and Curt.) Diehl on *Uniola laxa* (L.) B.S.P., *Paspalum pubescens* Nuhl, *Paspalum ciliatifolium* Michw. and on indetermined Bambusae, with the development of the ascostromata at the tips of the leaves and on abortive blossoms; *B. asclerotiaca* on *Orthoclada laxa* (L. Rich) Beauv., with its ascostromata on stubs and abortive blossoms.

To these species, *Balansiopsis guareae* n. sp. is added, having *Guarea trichilioides* Cav. (Meliaceae) wild plant as host (fig. 1). The infected plants show dwarfed and wrinckled leaves, and the blossom not entirely developed.

BALANSIOPSIS GUAREAE n. sp.

Hypothallus - Causing no spots, pseudoparenchymatous, black, growing no further than 3 mm diameter, on the epidermis of the median portion of the leaves; it functions as a base for the ascostromata, these surrounding it entirely. It results from a grouping of hyphae of the systemic mycelia, into epidermic tissue, without agglutinating portions of this tissue. The mycelium is hyaline, very slender, having no more than $1\ \mu$ in diam., and is apparently distributed all along the host's body: although not very easy to be seen, its presence has been observed in leaves not presenting ascostromata, by means of hystological study, to be growing in the intercellular space, inducing the authors to consider it as having a systemic habit.

Ascostromata - Epiphyllous, sessile, carbonaceous, bristle, gregarious or scattered (fig. 2) having a conoidal shape, with 2-3,5 mm high and 1-2,5 mm diameter at the basal area, separated from the hypothallus by a slight constriction (fig. 3); surface black, rough or pseudotubercular, with punctuations that stands out as the perithecia come outward; context whitish or white-yellowish. With the aid of transversal cuts, it shows a pseudo-parenchymatic origin. The context is separated from the carbonaceous surface by a dark brown line more or less uniform, fig. 4. When ripe the ascostromata fall from the leaves, leaving a whitish circular area at the surface of the leaves (fig. 5 and 6).

Perithecia - Bottle shaped, disposed in circular way, having 150-350 μ long. by 110-250 μ diam. with walls of stromatic cells no more than 7,5-12,5 μ diam., the distance between them is from 56-135 μ , not compressed; the basal region of the perithecia presents a very clear prosenchymatous neck, from which the asci are born, the ostiolar portion being wrapped by paraphyses (fig. 7).

Asci - Cylindric-clavate, 8-spores, with a short pedicel, having the apex characteristically protected by the slime cap, (fig. 8), very numerous, having 72-5-288 x 5-7,5 μ ; paraphyses lacking at maturity.

Ascospores - Filiform, hyaline, 8-20 septate, parallel or polystic disposed, 65-280 x 0,5-1 μ , each cell developing at germination one or more germinative tubes that are perpendicular to the main axis, during germinative process (fig. 8).

On living leaves of *Gitó* - *Guarea trichilioides* Cav. - Paulista, Pernambuco. Leg. Severino José da Silva, 12.6.1955. Type 2456, Institute of Mycology, University of Recife, Brazil, S. Amer.

✓
Hypothallus haud maculicolus, pseudo-parenchymaticus, ater, usque 3 mm diam, in area mediana foliis vivis epidermalibus; mycelium endogenum, hyalinum, 1 μ , intercellulare. Ascostromata epiphylla, sessilia, super hypothallum evoluta, gregaria vel sparsa, conoidea, 2-3,5 mm. alt. et 1-2,5 mm ad basem diam, atra, rugosa vel pseudo-tuberculata; contexto albescente vel albidoflavescente, pseudoparenchymatico. Peritheciis lageniformibus, circulatim dispositis, 150-350 x 110-250 μ , parietibus 2,5-12,5 μ ex cellulis stromaticis, fuscis. Asci cylindro-clavati, 8-spори, breviter-stipati, ad apicem « slime-cap » evoluti, plurimi, 72,5-288 x 5-7,5; paraphysibus deliquescentibus. Sporae filiformes, hyalinae, 8-28-septatae, parallelae vel polystichae, 65-280 x 0,5-1 μ . In foliis vivis *Guareae trichilioidis* Cav. - Paulista, Pernambuco. Leg. Severino José da Silva, 12.6.55. Typus 2456, Department of Mycology, University of Recife, Prov. Pernambuco, Brasil, Amer. Austr.

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Fig. 1. — *BALANSIOPSIS GUAREAE* Batista & Maia n. sp.
Ascostromata scattered over the superior face of *Guarea trichilioides* Cav.

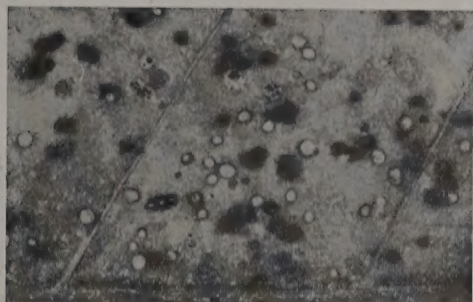


Fig. 2. — *BALANSIOPSIS GUAREAE* Batista & Maia n. sp.
One aspect of the gregarious disposition of ascostromata in one infected leaf; the white areas are portions from which these structures fell out.

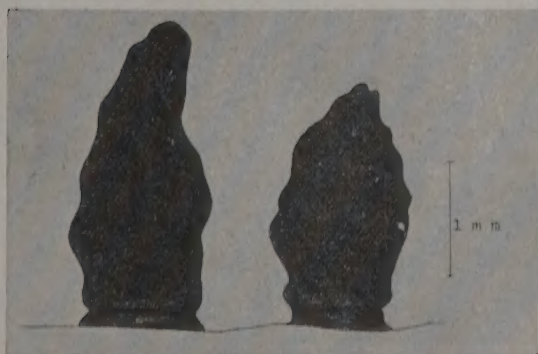


Fig. 3. — *BALANSIOPSIS GUAREAE* Batista & Maia n. sp.
Ascostromata aspects, whitish basal hypothallus.

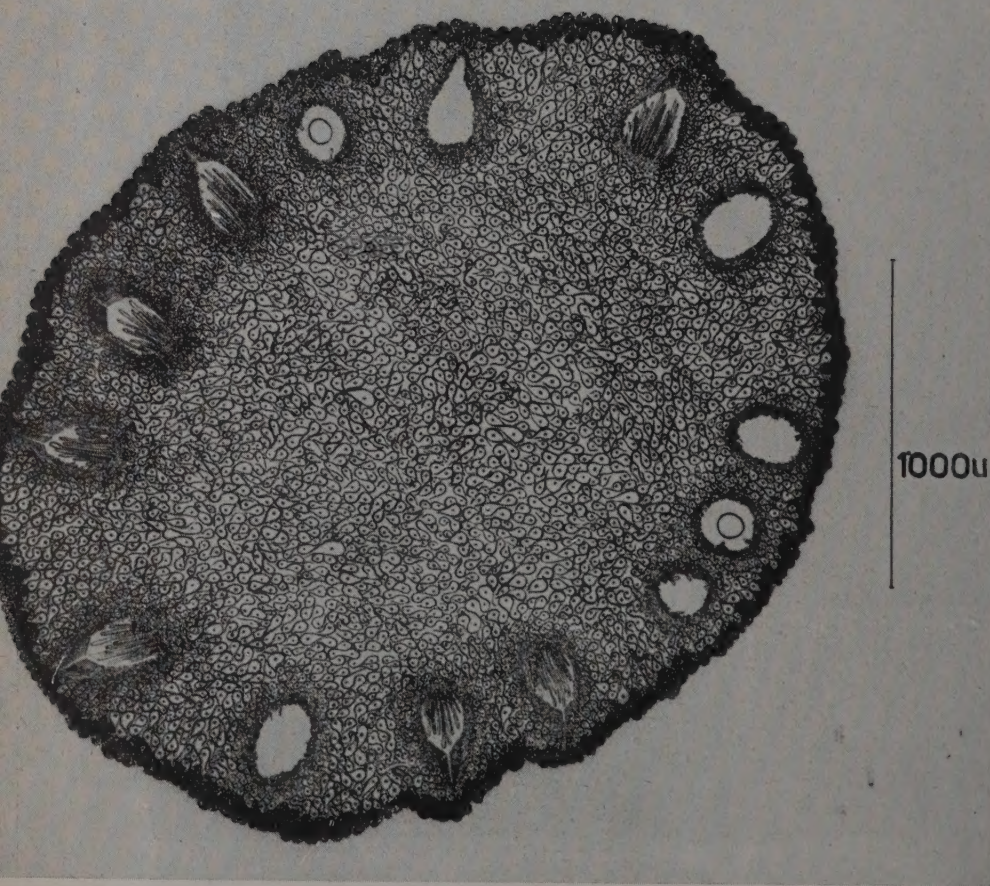


Fig. 4. — *BALANSIOPSIS GUAREAE* Batista & Maia n. sp.
Hystological cut of one ascostromata, 15 μ thick, showing the perithecia
disposition..

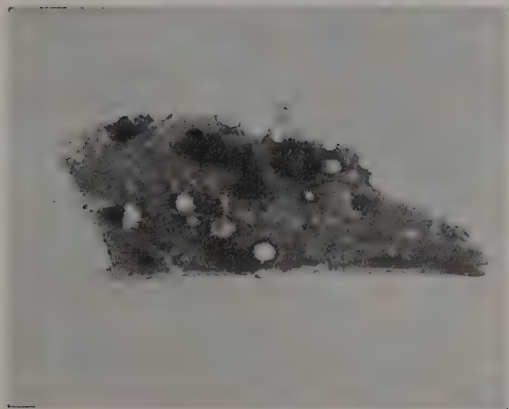


Fig. 5. — *BALANSIOPSIS GUAREAE* Batista & Maia n. sp.
The black shadows are the ascostromata and the white ones show areas
of a leaf tissue already free.

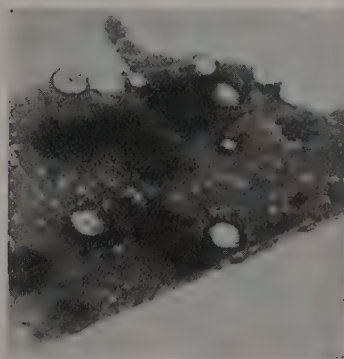


Fig. 6. — *BALANSIOPSIS GUAREAE* Batista & Maia n. sp.
Enlarged view of the ascostromata in a piece of one infected leaf.

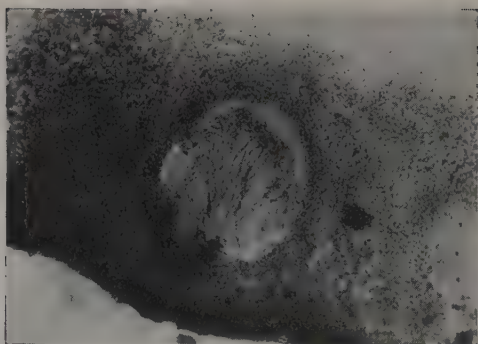


Fig. 7. — *BALANSIOPSIS GUAREAE* Batista & Maia n. sp.

Perithecia showing the basal narrowing, from which arise the asci;
transversal cut $12\ \mu$ thick.

200 x

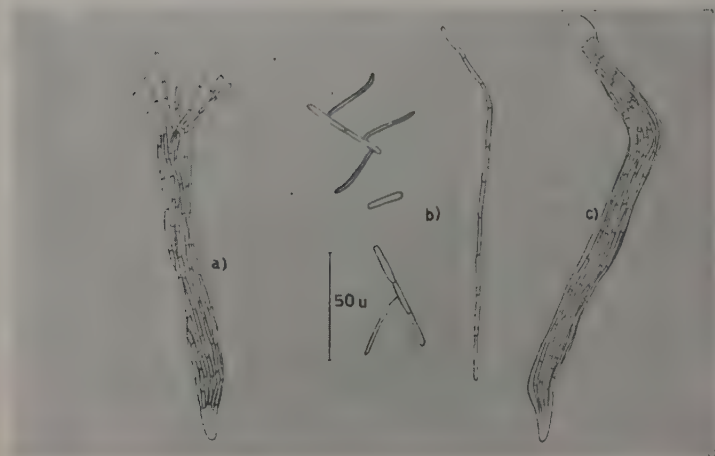


Fig. 8. — *BALANSIOPSIS GUAREAE* Batista & Maia n. sp.

a) asci liberating spores;

b) fragments of germinating ascospores and one ascospore not yet fragmented;

c) asci with the slime-cap.

